

# ORAL SURGERY ASSISTANCE

### INTRODUCTION

Oral surgery deals with the surgical treatment or correction of diseases, defects, or injuries of the oral cavity, teeth, and adjacent tissues. A sound knowledge of surgical assisting procedures is essential if you are to be an effective oral surgery assistant.

### ORAL SURGERY FUNCTION

Oral surgery provides surgical treatment or correction of diseases, defects, or injuries of the oral cavity and facial structures. A wide variety of surgical procedures takes place in the oral-maxillofacial surgery area. *Exodontics* is the term used to describe the extraction of teeth in oral surgery. General dentists are trained in surgical procedures; however, they may choose to refer the patient with a more complicated case to an oral surgeon who has specialized training in the area. A maxillofacial surgeon is an oral surgeon who specializes in the reduction of bone fractures and reconstruction of the maxilla or mandible, and performs reconstructive surgery.

### INDICATIONS AND CONTRAINDICATIONS

Before a surgical procedure can be done, the oral surgeon will evaluate each patient's record for indications and contraindications to treatment. Some indications for oral surgery include:

- Carious teeth unrestorable by restorative procedures.
- Nonvital teeth when endodontic treatment is not indicated or has little chance of success.
- Removal of teeth to provide space in the arch for orthodontic treatment.
- Teeth without sufficient bone support.
- Supernumerary or impacted teeth interfering with normal dentition.
- Malpositioned teeth that cannot be aligned.
- Root fragments from prior extractions or surgery.
- Removal of soft-tissue.
- Removal of exostosis (overgrowth of bone), such as torus mandibularis and torus plantinus.
- Accidental fracture or reconstruction of the mandible or maxilla.

The oral surgeon will also evaluate the patient for possible contraindications to surgical treatment. Extractions should be avoided when an active infection is present because local anesthesia is difficult to achieve and the infection can spread to other parts of the body. Patients suffering from any potentially serious disease, such as heart disease, diabetes, and blood disorders, should first be evaluated by a physician to determine if they can withstand the prescribed treatment. Patients in the early stages of pregnancy should have the surgery postponed until they are in the second trimester.

### EXAMINATION AND INFORMED CONSENT

Examination and informed consent are essential to determine what treatment is required, and provide all relevant information to the patient to make an informed decision regarding proposed treatment.

#### Examination

The oral surgeon examines the patient to confirm the findings of the referring dentist and gather any other additional information to make treatment recommendations. Oral surgeons should order radiographs of the teeth, mandible, maxilla, or other facial areas to verify the treatment recommendations if not already taken. The radiographs may include periapical, extraoral of the skull or facial aspects, panoramic, temporomandibular, and occlusal. A comprehensive medical history review is essential for the surgical patient because of the strain surgery places on the body. If there are any questions regarding the patient's health or ability to withstand surgery, the surgeon should consult with the patient's physician before surgery. During the examination, the oral surgeon also discusses appropriate pain-control methods for the surgical treatment recommended, and informed consent with the patient or legal guardian.

## Informed Consent

Providing proper informed consent is an integral part of appropriate patient-provider relations. Dental providers should make every attempt to disclose all relevant information to the patient or legal guardian in

order for them to make an informed decision regarding any proposed treatment. The Standard Form 522, Request for Administration of Anesthesia and for Performance of Operations and other Procedures (fig. 5-1) should be used when informed consent is required, including the use of intravenous conscious

<b>MEDICAL RECORD</b>	<b>REQUEST FOR ADMINISTRATION OF ANESTHESIA AND FOR PERFORMANCE OF OPERATIONS AND OTHER PROCEDURES</b>	
<b>A. IDENTIFICATION</b>		
1. OPERATION OR PROCEDURE _____		
<b>B. STATEMENT OF REQUEST</b>		
1. The nature and purpose of the operation or procedure, possible alternative methods of treatment, the risks involved, and the possibility of complications have been fully explained to me. I acknowledge that no guarantees have been made to me concerning the results of the operation or procedure. I understand the nature of the operation or procedure to be _____ <small>(Description of operation or procedure in layman's language)</small>		
_____		
_____		
which is to be performed by or under the direction of Dr. _____		
2. I request the performance of the above-named operation or procedure and of such additional operations or procedures as are found to be necessary or desirable, in the judgment of the professional staff of the below named medical facility, during the course of the above-named operation or procedure.		
3. I request the administration of such anesthesia as may be considered necessary or advisable in the judgment of the professional staff of the below-named medical facility.		
4. Exceptions to surgery or anesthesia, if any, are: _____ <small>(If "none", so state)</small>		
5. I request the disposal by authorities of the below-named medical facility of any tissues or parts which it may be necessary to remove.		
6. I understand that photographs and movies may be taken of this operation, and that they may be viewed by various personnel undergoing training or indoctrination at this or other facilities. I consent to the taking of such pictures and observation of the operation by authorized personnel, subject to the following conditions:		
a. The name of the patient and his/her family is not used to identify said pictures.		
b. Said pictures be used only for purposes of medical/dental study or research.		
<small>(Cross out any parts above which are not appropriate)</small>		
<b>C. SIGNATURES</b> <small>(Appropriate items in Parts A and B must be completed before signing)</small>		
1. COUNSELING PHYSICIAN/DENTIST: I have counseled this patient as to the nature of the proposed procedure(s), attendant risks involved, and expected results, as described above.		
_____		
<small>(Signature of Counseling Physician/Dentist)</small>		
2. PATIENT: I understand the nature of the proposed procedure(s), attendant risks involved, and expected results, as described above, and hereby request such procedure(s) be performed.		
_____ <small>(Signature of Witness, excluding members of operating team)</small>	_____ <small>(Signature of Patient)</small>	_____ <small>(Date and Time)</small>
3. SPONSOR OR GUARDIAN: (When patient is a minor or unable to give consent) I, _____		
sponsor/guardian of _____ understand the nature of the proposed procedure(s), attendant risks involved, and expected results, as described above, and hereby request such procedure(s) be performed.		
_____ <small>(Signature of Witness, excluding members of operating team)</small>	_____ <small>(Signature of Sponsor/Legal Guardian)</small>	_____ <small>(Date and Time)</small>
<b>PATIENT'S IDENTIFICATION</b> <small>(For typed or written entries give: Name—last, first, middle; grade; date; hospital or medical facility)</small>	<b>REGISTER NO.</b> _____	<b>WARD NO.</b> _____
<b>STANDARD FORM 522 (Rev. 10-76)</b> General Services Administration & Interagency Comm. on Medical Records FPMR 101-11.806-8 522-109		
☆ GPO : 1984 O - 421-526 (184) NSN 7540-00-634-8165		

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Figure 5-1.—Request for Administration of Anesthesia and for Performance of Operations and Other Procedures, SF 522.

sedation or general surgery, and certain oral or periodontal surgery procedures. Most routine informed consent can be easily accomplished during the verbal verification of diagnosis and treatment presentation.

## **PAIN AND ANXIETY CONTROL**

When dental surgery is indicated, whether oral or periodontal, there are several pain and anxiety control methods available to make the surgery as smooth as possible and put the patient at ease. The three basic levels of anesthesia are local, conscious sedation, and general. You should review *Dental Technician*, Volume 1, Chapter 7, "Oral Pharmacology," to help you better understand the following information

### **Local Anesthesia**

The primary effect of local anesthetic agents is to penetrate the nerve cell membrane and block the conduction of nerve impulses from the point where the local anesthetic is active. This produces anesthesia in the local area. Local anesthesia, using infiltration, nerve block, or a combination of both techniques, is used in surgery cases to numb the surgery area.

Most dental surgery procedures require two or more injections of a local anesthetic. For this reason, it is a good practice to include two aspirating syringes with each instrument setup. This will let you supply the dentist with a loaded anesthetic syringe for as long as needed with minimum loss of time. Since anesthetic solutions are bitter and there is leakage from the injection sites, you will need to irrigate and aspirate the fluids from the patient's mouth after injection.

### **Conscious Sedation**

Conscious sedation is a minimally depressed level of consciousness that retains the patient's ability to independently and continuously maintain an airway, and respond appropriately to verbal commands. Conscious sedation involves using various drugs or a combination of drugs to achieve pain and anxiety control while maintaining the patient in a conscious state at all times. The common routes of administration of conscious sedation are oral premeditation, inhalation, and intravenous. Local anesthesia is administered with all types of conscious sedation.

### **General Anesthesia**

General anesthesia is a controlled state of unconsciousness accompanied by a partial or complete

loss of protective reflexes, including the ability to maintain an airway independently and respond to verbal commands. General anesthesia renders the patient unconscious through depression of the central nervous system, thus eliminating patient cooperation as a factor. The administration of general anesthesia is performed by an anesthesiologist in the hospital operating room. Local anesthesia is also administered at the treatment site.

## **ORAL SURGERY PROCEDURES**

While there are many oral surgery procedures, some are more commonly performed than others. You should be knowledgeable of those that are commonly performed. In the following paragraphs, we discuss surgical procedures you will need to know.

### **TOOTH EXTRACTIONS**

Tooth extraction is an oral surgery procedure classified into three types: simple, complicated, and impacted extractions. These are explained briefly in the following paragraphs.

#### **Simple Extractions**

Simple extractions involve removal of a tooth or root that does not require bone removal or sectioning. The deciduous (nonpermanent) or permanent tooth extracted is erupted and usually diseased or malposed. Retained roots may be buried in the tissue and not visible in the oral cavity. Retained root tips may be present because of fractured teeth, advanced decay, or any incomplete post-surgical procedure. They can be identified on radiographs.

#### **Complicated Extractions**

Complicated extractions involve removal of a tooth or root that requires surgical sectioning and/or bone removal.

#### **Impacted Extractions**

Impacted extractions involve removal of a tooth that is partially or completely covered by bone and or soft tissue. This extraction may involve tissue incision, excision, or bone removal. Two types of impactions are associated with oral surgery: soft tissue and bony impaction.

- Soft tissue—occurs when the tooth is blocked from eruption due to the gingival tissue. It may be partially erupted with a portion of the tooth visible in the mouth.

- **Bony impaction**—occurs when the tooth is blocked by both bone and soft tissue. The soft tissue must be removed to gain access to the tooth before it can be extracted. The oral surgeon removes the alveolar bone over the impaction using a bur or chisel and mallet. Removal of the bone provides access for elevators or extraction forceps to extract the tooth. A surgical handpiece with a bur may also be used to section the tooth into four pieces and then each piece is removed separately. A commonly performed impacted extraction is the removal of unerupted third molars.

## ALVEOLOPLASTY

Alveoloplasty involves contouring the alveolar structures. It may be done in conjunction with multiple surgical extractions to eliminate sharp bone edges that could cause discomfort to the patient, and to provide suitably contoured bone structure for denture fabrication and insertion. An alveoloplasty may also be performed to contour the bone without being in conjunction with extractions.

## OSTEOTOMY

Osteotomy literally means cutting away of bone. Osteotomies include maxillofacial surgery performed to modify or correct facial abnormalities, such as protrusion of the mandible or maxilla where the bone is placed as far forward as possible, or retrusion of the mandible or maxilla where the bone is placed as far back as possible. The oral surgeon may also perform an osteotomy on a patient who has a fractured mandible or maxilla. The patient's teeth are splinted to bind them together into one unit using arch bars, elastic bands, and interdental sutures using wire. This keeps the bones in place, while they heal into the correct position. After healing takes place, the splint and wiring are removed.

## EXOSTOSIS

Exostosis is the surgical removal of bony growths projecting past the normal contour of a bony surface. It includes **torus mandibularis** often found on the lingual surfaces of the body of the mandible, and **torus palatinus** located on the center of the hard palate. Usually, tori removals are performed to permit fabrication and insertion of dentures, or to improve speaking or eating functions.

## FRENECTOMY

A frenectomy is a surgical procedure used to remove a malattached facial or lingual frenum. A

frenum is the tissue that attaches the tongue, cheeks, and lips to the alveolar process of the upper and lower jaw. The malattached tissue restricts movement of the tongue (lingual frenum) or lips (labial frenum). The frenum may be removed, loosened, or repositioned. The excision of the lingual frenum is done to help correct a condition known as tongue-tie. The labial frenum may require surgery to enable better lip movement, and to help prevent large diastemas (spaces) between erupting central incisors. Frenectomies are commonly performed on children.

## BIOPSY

A localized area of abnormal tissue is referred to as a lesion. A biopsy is a surgical procedure to remove a piece of tissue from the lesion for diagnostic and microscopic examination. The information obtained from a biopsy procedure assists the dentist in arriving at a diagnosis and predicting the prognosis of the disease. It is common in dentistry to remove both normal and abnormal tissue from the surgical site for comparison.

The tissue specimen should be handled carefully to prevent crushing or tearing. Immediately place it into a specimen bottle containing a sufficient amount of 10 percent of buffered formalin to preserve it. Before submitting the specimen, ensure that the bottle is tightly closed and labeled properly. At a minimum, the label should include the patient's name, age, sex, and the dentist's name, your command's name, and the date of the biopsy. The dentist will include a Tissue Examination, SF-515 Form, with the specimen along with a tentative diagnosis that is sent to an oral histopathology center. If the histopathology report of an oral biopsy has a premalignant or malignant diagnosis, the dentist must notify the patient of the results. Two common biopsy methods used in dentistry are incision and excision methods.

### Incision Method

The incision method involves the removal of a sample of the lesion for examination. A wedge-shaped section of the tissue from the lesion along with adjacent normal tissue is removed for comparison. The biopsy site is sutured and the patient is dismissed.

The incision method generally is used when the lesion is large or in a strategic area where complete removal of the lesion would create significant esthetic or functional impairment. Complete surgical removal of the lesion is not indicated until a final diagnosis is

made. If the lesion is not malignant, it is allowed to heal without further surgery. If a laboratory test shows the tissue is malignant, complete removal is indicated.

### **Excision Method**

The excision method involves removal of the entire lesion along with some adjacent normal tissue. This procedure is done on small lesions where complete removal would not create significant esthetic or functional impairment.

### **FOREIGN BODY REMOVALS**

This is the removal of any foreign body, such as a needle, metallic restoration, or pieces of elevators, forceps, or even bullets. Such a removal is considered a surgical procedure. It is not always indicated, and is often left up to the judgment and discretion of the dentist.

### **SEQUESTRECTOMY**

Sequestrectomy procedure involves the removal of devitalized portions of the bone that have separated from the adjacent bone. Often the devitalized portion of bone will work its way partially through the tissue and be sharp and rough.

### **TRAUMATIC WOUND REPAIR**

Simple and complicated wounds of the facial and or oral soft tissues may be repaired and or sutured in oral surgery.

### **INCISION AND DRAINAGE**

Incision and drainage involves surgical inter-vention for drainage of an abscess, cyst, or hematoma. A surgical rubber drain can be sutured in the area to establish drainage.

### **IMPLANTS**

There are several types of surgical implant devices and associated procedures. An **endosseous implant** is a device placed in the alveolar bone to support an oral or facial prosthesis. A **transosteal** or **superiosteal implant** is a device placed to support an oral or fixed prosthesis. A **surgical abutment procedure** involves uncovering the implant and connection of the abutment used in the prosthetic reconstruction of single or multiple teeth.

### **ALVEOLAR OSTEITIS**

After the extraction of a tooth from its alveolus, healing begins immediately when blood oozes into the alveolus and forms a clot. The clot is later replaced by scar tissue and ultimately bone as healing progresses. The blood clot also protects the alveolus from food, air, and fluids. If the blood clot does not form or dislodges from the tooth socket, a painful condition called alveolar osteitis (also known as a **dry socket**) may occur from 2 to 4 days after the removal of a tooth. With the clot missing, healthy granulation is absent and the tissue within the socket appears grayish in color and often presents a foul odor. The patient is usually in severe and persistent pain because of the exposed bone in the open socket. In *Dental Technician*, Volume 1, chapter 6, we describe emergency treatment for this condition.

### **PERICORONITIS**

The procedure for pericoronitis involves the treatment of the gingival tissue surrounding a partially erupted or malposed tooth, that develops painful, localized inflammation. In *Dental Technician*, Volume 1, chapter 6, we also describe emergency treatment for this condition.

### **SURGICAL INSTRUMENTS**

Many surgical instruments are used in both oral surgery and periodontic procedures. All surgical instruments are made of high-grade steel, either stainless or chrome-plated. Each instrument has a particular purpose and should be handled with extreme care. The instruments with cutting edges must be kept sharp to prevent slippage. Hinged instruments should be lubricated with a milk bath and sterilized in the wide open position to keep them in good operating condition and to prevent rusting.

### **MISCELLANEOUS SURGICAL INSTRUMENTS**

No matter what kind of dental surgery is being performed, some miscellaneous instruments will almost certainly be required. Among these are surgical suction, retractors, scalpels, suture needles and materials, and surgical scissors. A few other instruments, such as mouth props, mouth gags, and a surgical mallet, will also be included with the miscellaneous surgical instruments.

## Surgical Suction Apparatus

Whenever a surgical procedure is performed, sterile instruments are essential. Since it is not possible to sterilize all parts of the suction apparatus attached to the dental unit, it is necessary to modify it with a sterile surgical suction apparatus. In some cases, you may use a mobile suction unit that also uses similar items. These items are composed of the hose, handle, and tips. The hose is used to connect the handle to the suction apparatus and has a sterile tubing that is available in various lengths. The handle has a bulbous portion on one end and a chuck on the other end. The bulbous portion is slipped into one end of the hose, and the chuck holds the tips. There are several tips available ranging from #1 to #4. The smaller #2 is suitable for use in a tooth socket. When these parts are properly joined and the loose end of the tubing is connected to the suction, they function as a single suction unit (fig. 5-2). Your job is to connect the parts, operate the suction, and manipulate the handle and tip. With experience, you should be able to perform these tasks quickly and efficiently to keep the surgical site clear for the dentist.

### Retractors

There are different kinds of retractors, but the purpose is the same for each. Retractors are used to hold back objects in the oral cavity.

**TISSUE RETRACTORS.**—In oral surgery, tissue retractors hold tissue flaps away from the treatment site to provide better visibility. Some retractors have forklike prongs, as shown in figure 5-3. This allows the handling of the tissue without causing excessive damage.

**TONGUE AND CHEEK RETRACTORS.**—These retractors are designed to hold and retract the cheeks, tongue, or a portion of the mucosa during

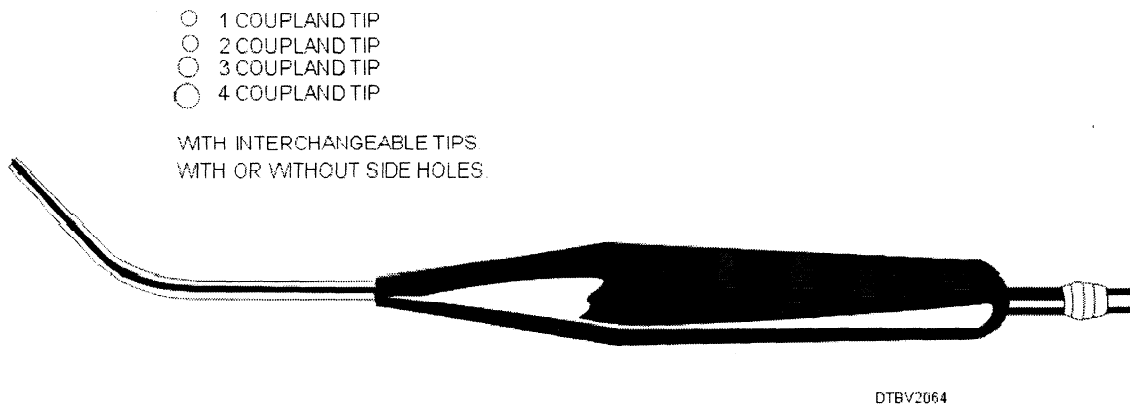


Figure 5-2.—Surgical suction handle and tip.

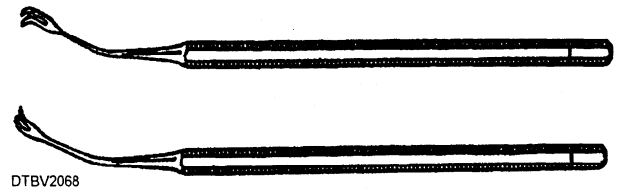


Figure 5-3.—Tissue retractors.

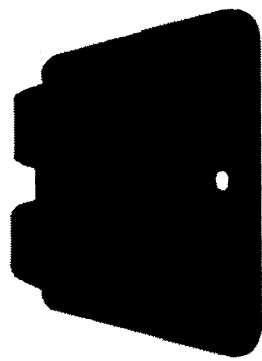
surgical procedures. The retractors are made of metal or plastic, and may be large, curved, or angled. A commonly used retractor is the Minnesota retractor, shown in figure 5-4, which is a bent, angled piece of steel.

### Mouth Props and Gags

Mouth props and gags hold the patient's mouth open mechanically. The mouth prop, shown in figure 5-5, is a solid piece of rubber, whereas the mouth gags



Figure 5-4.—Minnesota tongue and cheek retractor.



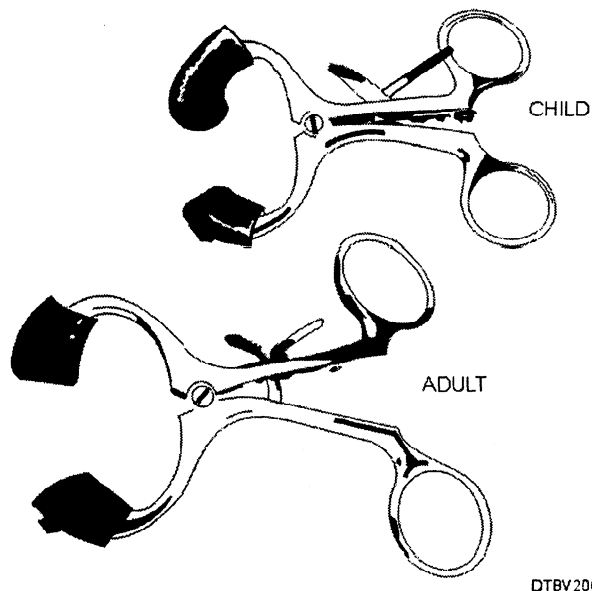
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Figure 5-5.—Mouth prop.

(fig. 5-6) are lock-type forceps with rubber-covered extensions. The rubber provides protection against injury to the enamel of the teeth. The use of mouth props and gags is by no means limited to surgery. They are also commonly used in restorative and pediatric dentistry when patients have difficulty keeping their mouths open during the procedure.

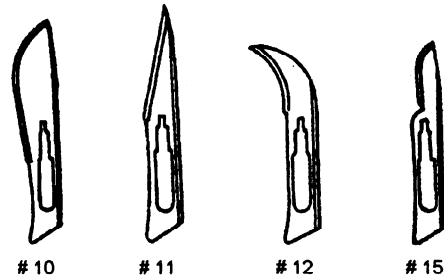
### Surgical Scalpels

Surgical scalpels are composed of handles and blades used to incise or excise soft tissues, and come in various sizes and shapes. The use of each type depends upon the type and accessibility of the tissue to be cut. The blades come in presterilized packages and should be discarded after one use. Attach and remove the blades from the handles with hemostatic forceps. This prevents accidental cuts and possible infection. The two commonly used surgical scalpel handles are the #3 and beaver style. Each handle uses a different kind of blade and attachment method.



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Figure 5-6.—Mouth gags.



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Figure 5-7.—Scalpel Handle #3 and blades.

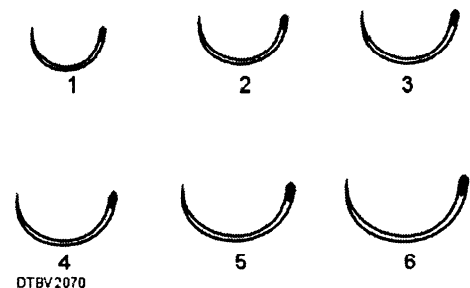
The #3 handle, shown in figure 5-7, is short and wide; it uses a slotted blade that slides onto the handle. The four blades most often used with this handle are the #10, #11, #12, and #15. Blades #10 and #15 have similar working ends. The greatest difference is that the #10 blade is longer. The cutting edge on both of the blades is on the curved part of the blade.

### Suture Needles and Materials

Suture needles and materials are packaged in sterile packs with the needles and have already been attached to the suture material. There is a wide variety of both needles and suture materials.

**NEEDLES.**—Most suture needles used in dentistry are semicircular. They have either smooth sides or cutting sides, and vary greatly as to the diameter of the semicircle, as shown in figure 5-8. The smaller sizes are used most often because of the limited space in the oral cavity.

**MATERIALS.**—Dentists use suture material with a suture needle to close wounds in and around the oral cavity. Suture materials are usually classified as either **absorbable** or **nonabsorbable**. Almost all sutures used in oral surgery are nonabsorbable. These sutures must be removed after the wound heals enough to hold together. Absorbable sutures are dissolved and



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Figure 5-8.—Suture needles.

absorbed in the body. Examples of absorbable sutures are the natural (plain and chromic) gut and synthetic types.

A variety of materials are used to make nonabsorbable sutures. Some of these are silk, cotton, nylon, polyester, and corrosion-resistant steel wire. The most common suture material used in oral surgery is made of silk.

All of these suture materials are available in different diameters. The smaller the number, the larger the diameter of the suture material. The 3-0 size is commonly used in periodontal surgery. The most commonly used suture material for oral mucosa is the 4-0 silk. To suture facial lacerations, the 5-0 suture size is commonly used.

**WOUND CLOSURE.**—When assisting with wound closures, grasp the suture needle with the needle holder approximately one third of the way between the eye of the needle and the needle point, and pass it to the dentist. When the needle is inserted into the tissue, the dentist may require you to hold the tissue firmly with tissue forceps.

As each suture is tied, the dentist may have you cut the suture above the knot with surgical scissors, being careful not to cut it too short, since this may cause the suture to come untied.

### Surgical Scissors

Scissors are used in dental surgery to cut tissues and sutures. The scissors used to trim excess or irregular soft tissues have one serrated blade to eliminate slippage. Those with smooth blades are normally used for cutting sutures or other fabric materials. Figure 5-9 illustrates the Dean surgical scissors. Many types of surgical scissors are commonly used such as the Kelly curved or sharp, Mayo curved or straight, and the Iris curved or straight.

### MISCELLANEOUS SURGERY FORCEPS

With the exception of the rongeur forceps, which are used to cut bone, most forceps are grasping-type



Figure 5-9.—Dean surgical scissors.

instruments. The forceps that secure patient towels and drapes, hold suture needles, control hemorrhage, and grasp oral soft tissues are commonly used in most dental surgeries. We will consider them a miscellaneous group for our purposes.

### Towel-Clamp Forceps

Towel-clamp forceps (fig. 5-10) are used to maintain surgical towels and drapes in the correct position during an operation. The working ends may have either sharp points or blunt flat tips that overlap in the closed position.

### Needle-Holder Forceps

Needle-holder forceps hold needles during suturing procedures. The typical needle holder has two short, rather blunt, serrated beaks with a distinct groove in each beak (fig. 5-11). The grooves provide space for the placement and retention of the needle. At the end of the handles, there is a graduated, notched-locking device that lets the dentist secure the suture needle in the suturing position as if the needle were an extension of the needle holder.

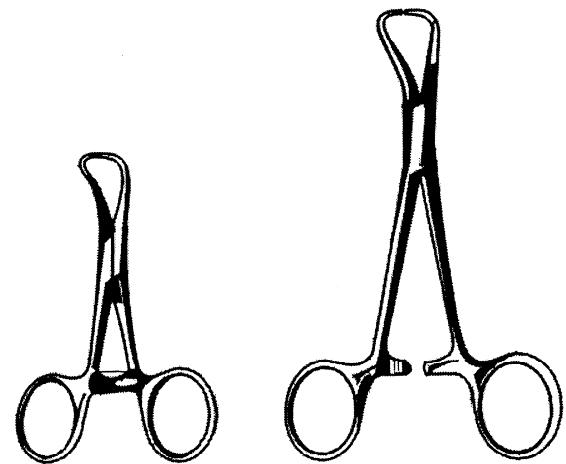


Figure 5-10.—Small and large towel-clamp forceps.

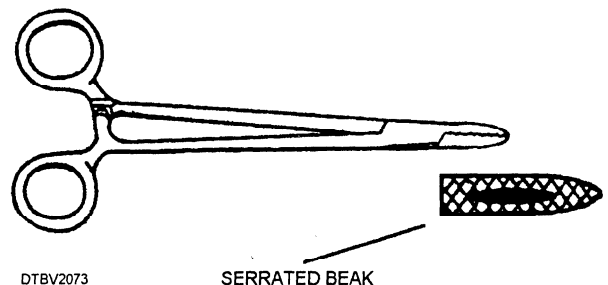


Figure 5-11.—Needle-holder forceps.

## Hemostatic Forceps

Hemostatic forceps (fig. 5-12) look very much like needle-holder forceps. The main difference is that the beaks of the hemostatic forceps are longer and more slender. They also have both curved and straight beaks, and there is a locking device on the handle to keep the beaks closed. These forceps are used in surgery to control hemorrhage by clamping or constricting blood vessels. In dental surgery, they are more commonly used to remove bits of debris, such as bone chips or parts of teeth, from the oral cavity.

## Tissue Forceps

Tissue forceps (fig. 5-13) look like cotton forceps, but they have two very small, sharp-pointed extensions that form a W-shape when in the closed position. Although the tissue forceps are used in oral surgery to grasp and stabilize loose tissue ends during suturing procedures, they are mainly used to hold tissue being excised.

## CUTTING INSTRUMENTS USED IN DENTAL SURGERY

When most people hear the word "surgery," the first thing they think about is the cutting of the body

with scalpels. Scalpels are not the only cutting instrument used in surgery, particularly dental surgery; for instance, curettes, chisel, rongeur forceps, and bone files are also used in some cutting functions.

## Surgical Curettes

While surgical curettes are not strictly cutting instruments, they must do some cutting. Curettes are sharp, spoon-shaped instruments used to clean out infected cavities in bone and remove debris from the tooth sockets. They come in many sizes and in straight or angled shapes. The type used depends on the nature of the socket, curvature of the roots that were in the socket, and the location of the cavity. The single-ended Molt curettes have large handles. They are the straight #2 and #4 and the paired, angled #5L and #6R (L for left, and R for right). They are shown in figure 5-14. Other curettes in dental surgery may be double-ended and have slender handles.

## Surgical Chisels

Surgical chisels may also be classified as cutting instruments. Like surgical burs, chisels are used to remove bone and to split teeth. Because their cutting

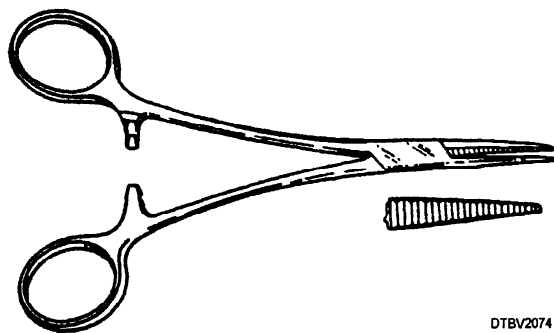


Figure 5-12.—Hemostatic forceps.

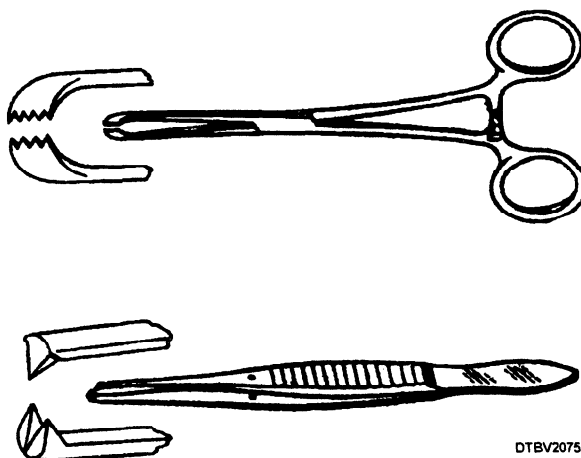


Figure 5-13.—Tissue forceps.

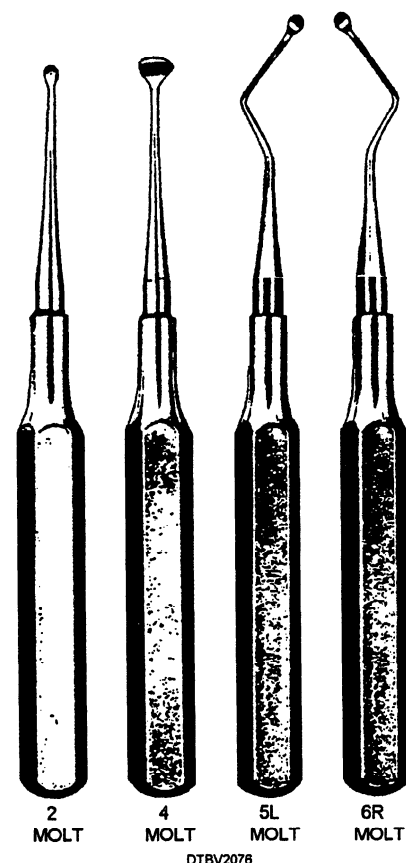


Figure 5-14.—Single-ended surgical curettes.

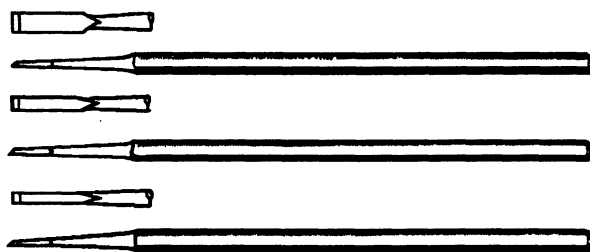
edges are easily dulled, you must sharpen them after each use. Surgical chisels are much larger than enamel chisels used in restorative dentistry. The surgical mallet (fig. 5-15) is used along with a selected chisel to split teeth or reduce alveolar bone.

### Rongeur Forceps

Rongeur forceps (fig. 5-16) are used to trim projecting, uneven, or overhanging bone (alveolectomy), usually after multiple extractions and before tissue suturing. It has a steel spring spreader, which opens the beaks when pressure is released from the handles.

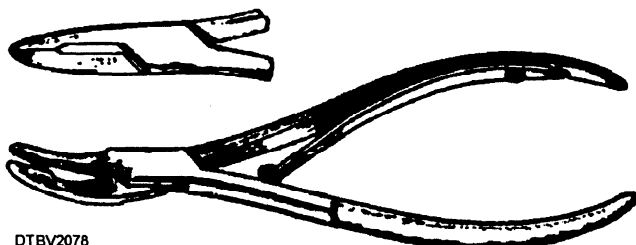
### Bone File

Although most of the bony projections are removed with the rongeur forceps, some rough edges usually remain. The bone file (fig. 5-17) may be used to further shape and smooth the alveolar bone. They are double-ended instruments, with both large and small working ends.



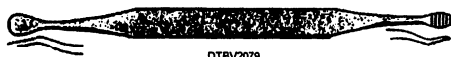
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Figure 5-15.—Surgical chisels and mallet.



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Figure 5-16.—Rongeur forceps.



DTBV2079

Figure 5-17.—Bone file.

## SURGICAL ELEVATORS

Three types of surgical elevators are used in oral surgery: the periosteal, root, and malar. Root picks are classified as root elevators and will also be discussed.

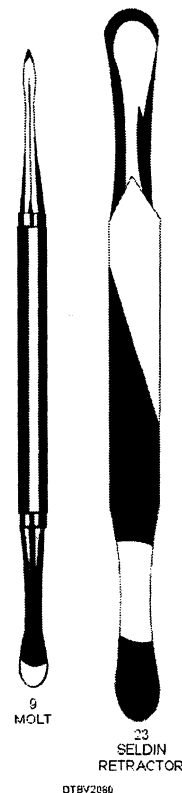
### Periosteal Elevators

During surgery the dentist often needs to separate a bone or tooth from the fibrous membrane, called the *periosteum* that covers it. This is done with a periosteal elevator. The dentist may also use it to gain access to retained roots and surrounding bone. Two periosteal elevators are the Molt #9 and Seldin #23 shown in figure 5-18. The Molt #9 is used exclusively as a periosteal elevator. The Seldin #23, because of its wide working ends, is also used as a retractor.

### Root Elevators

Root elevators come in many sizes and shapes. At least one (and sometimes more) is used in every tooth extraction. Which elevator or elevators that are used will depend upon the desire of the dentist. A root elevator has three functions:

- To loosen the teeth in their sockets.
- To remove parts of teeth (broken root tips or retained roots).
- To remove a complete tooth.



9  
MOLT

23  
SELDIN  
RETRACTOR

DTBV2080

Figure 5-18.—Periosteal elevators.

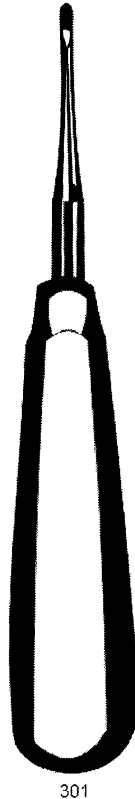
In the last case, the tooth is usually an underdeveloped third molar. The elevators are actually levers. The fulcrum (support point) for the elevator is usually the bone supporting the tooth.

**STRAIGHT ROOT ELEVATORS.**—The elevators composing the straight working end group are the #301 and the #34S (figs. 5-19 and 5-20). The

working ends are in line with the handle and have a concave surface. The #301 has the smallest working end and is used when roots are deeply seated. The #34S has the largest end and is commonly used for anterior roots. The #92, shown in figure 5-21, also has a straight working end; however, it is serrated and the shanks are angled rather than straight as in the #301 and #34S.

**SPADE/WEDGE-TYPE ROOT ELEVATORS.**—Another style of elevator has spade or wedge-type working ends. The Stout #11 (fig. 5-22) and the Cogswell A (fig. 5-23) are examples of this style. The Cogswell B, also shown in figure 5-23, is a pick-shaped root elevator that has a working end shaped similar to a rounded toothpick tip.

**ANGLED-TYPE ROOT ELEVATORS.**—In several sets of elevators, the handles are in line with the shank, but the working ends are set at an angle. The



301  
DTBV2081

Figure 5-19.—Root elevator #301.



92  
SERRATED

DTBV2083

Figure 5-21.—Serrated root elevator #92.



34S  
SELDIN  
DTBV2082

Figure 5-20.—Root elevator #34S.



11  
STOUT  
DTBV2084

Figure 5-22.—Stout #11 root elevator.

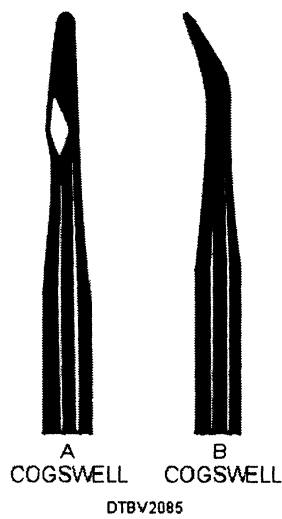


Figure 5-23.—Cogswell A and B root elevators.

Miller #73 and #74 elevators, shown in figure 5-24, have curved, thin working ends with smooth, rounded tips. These elevators are designed to elevate a tooth or large root fragment. The Seldins #1L and #1R, shown in figure 5-25, have sharp-tipped working ends with an abrupt 90-degree angle. The Seldins, sometime referred to as *East- West* elevators, are designed for use on molar roots. The Cryer #25 and #26 are similar to the #1L and #1R Seldins; however, the working ends are angled at angles greater than 90 degrees (fig. 5-26).

#### APICAL ROOT TIP PICK ELEVATORS—

This group of elevators are used to remove fractured root tips lodged deep in the root socket. These elevators are often called *root picks*. Elevators that make up this group are the #5 and #6 West, and the #9 apical, #9L, and #9R. The working ends on these elevators are very thin, sharply pointed, and small. The

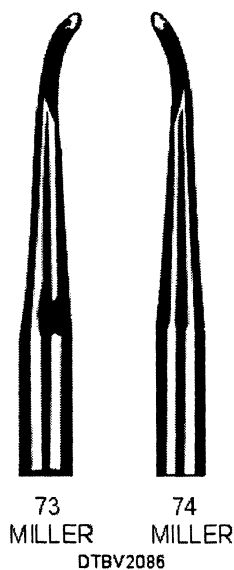


Figure 5-24.—Miller root elevators.

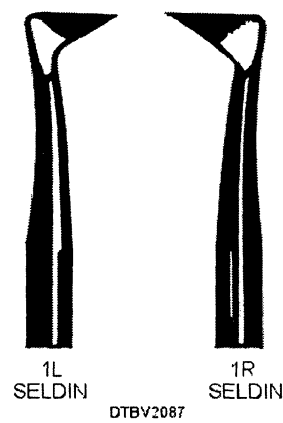


Figure 5-25.—East-West (Seldin) root elevators.

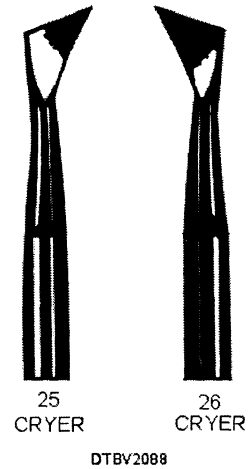


Figure 5-26.—Cryer root elevators.

#5 and #6 West, shown in figure 5-27, have much shorter shanks and are designed to remove extremely small apical fragments. The #9L and #9R are set at left and right angles to the handles (fig. 5-28). The handles are also small in diameter but longer than those on other elevators discussed earlier.

#### Malar Elevator

The facial bone that forms the cheek is called the zygoma or malar bone. An injury to this bone often causes a depressed fracture. If this occurs, the dentist will use a malar elevator to raise the bone to its normal position.

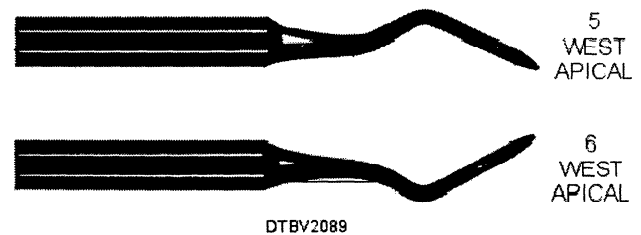


Figure 5-27.—Apical root tip picks (#5 and #6 west).

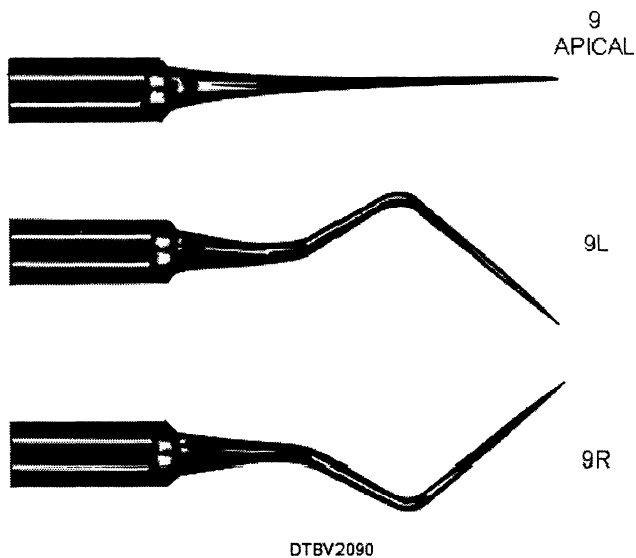


Figure 5-28.—Apical root tip picks (#9L and #9R).

## TOOTH EXTRACTION FORCEPS

There are several types of tooth extracting forceps. Except for those made for some specific operation, they generally have the same features: beaks, a neck, and handles, as shown in figure 5-29. The beaks of tooth extracting forceps are designed to grasp the tooth with maximum contact on the facial-lingual surface of the root(s) just below the cervix. The inner surface of each of the two beaks is concave and the outer surface is convex.

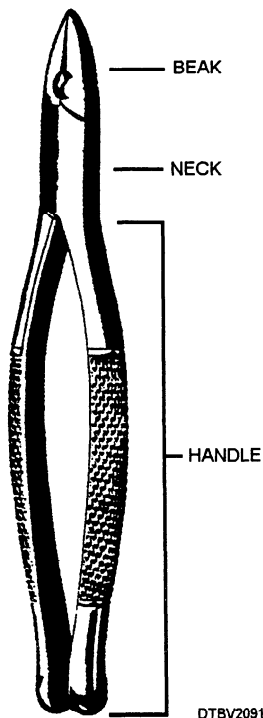


Figure 5-29.—Parts of forceps.

Tooth extracting forceps are designed for use in specific areas of the mouth. The beak is always shaped to conform snugly to the contour of the tooth. For example, both beaks of maxillary forceps are usually angled **away** from the curvature of the handles. These varying angles make it easier to reach various parts of the arch. The beaks of mandibular forceps are usually at a much sharper angle and in the **same** direction as the curvature of the handles. This makes it easier to reach different parts of the lower arch.

Another way of identifying the general area of the mouth in which tooth extracting forceps should be used is by its **neck**. The neck is shaped so that the beak can be placed on the tooth and still be parallel with the long axis of the tooth. The handles are shaped so that a maximum amount of force can be applied to the beaks, while the handles are still in a comfortable position for the oral surgeon. The beaks are also shaped so that a force on the handles tends to force the tooth out of its socket.

The overall shape of the forceps, from the beak to the handle, can usually provide quick identification of the arch for which it's designed. The **S**, **I**, and **Z** shaped forceps are used on the maxillary arch (fig. 5-30). Forceps which are **C** and **L** shaped are used on the mandibular arch (fig. 5-31).

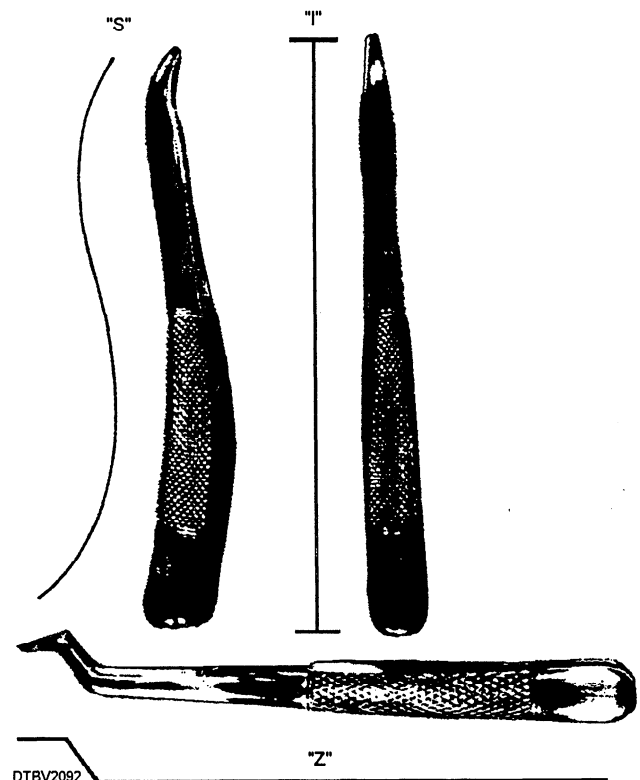
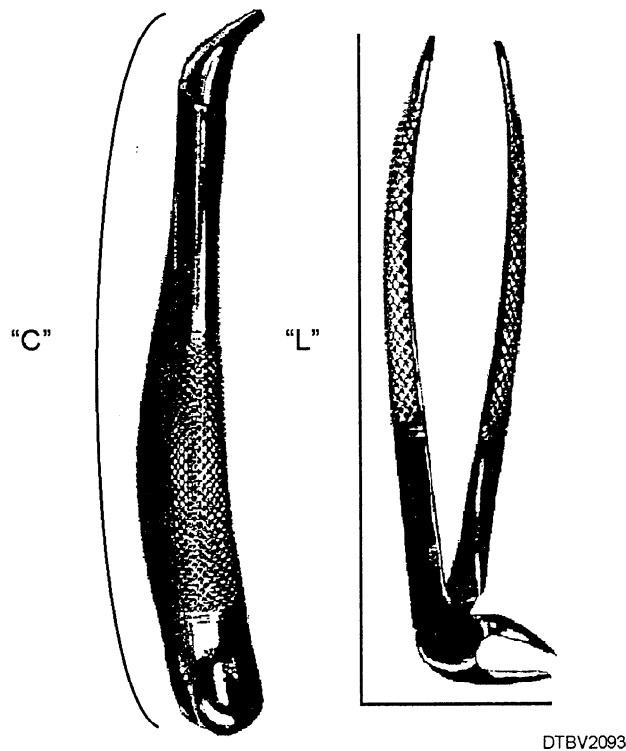


Figure 5-30.—Maxillary shaped extraction forceps.



**Figure 5-31.—Mandibular shaped extraction forceps.**

Dentists and oral surgeons will select forceps that are the most comfortable and provide the best results. So you can better assist during oral surgery procedures, you need to know where particular forceps are used. We will cover some of the more common tooth extracting forceps and where they are used in the mouth.

### **Maxillary, Incisors, Cuspids, and Bicuspids**

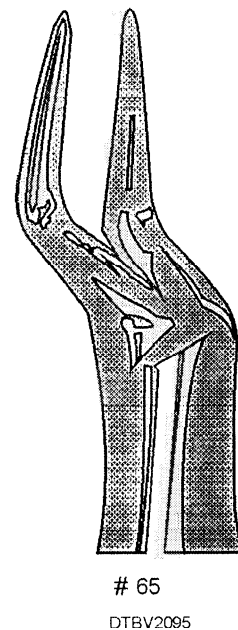
Some of the more commonly used extraction forceps designed for use in maxillary, incisor, cuspid, and bicuspid areas of the mouth include the #1, #65, #150, and #286.

**FORCEPS #1.**—Forceps #1 are used to remove maxillary incisors and cuspids. The beaks (grasping parts) are in line with the handle (fig. 5-32). Because of the straight line design, a dentist can exert a lot of leverage.

**FORCEPS #65.**—Forceps #65 are used on overlapping maxillary incisors and root tips. The handles of the #65 forceps are straight and the beaks are offset (fig. 5-33). When the forceps are closed, they resemble a bayonet. The beaks are short, very narrow, and slender.

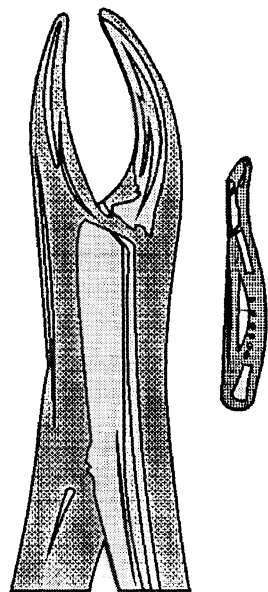


**Figure 5-32.—Forceps #1.**



**Figure 5-33.—Forceps #65.**

**FORCEPS #150.**—The Forceps #150 are sometimes referred to as maxillary universal forceps. Even though the #150 forceps can be used in any region of the maxillary arch, they are specifically designed to remove maxillary incisors, cuspids, bicuspids, and residual roots. The beaks are set at an angle to the handles, which makes them accessible to any part of the maxillary arch (fig. 5-34). When the handles are closed, the beaks are noticeably close



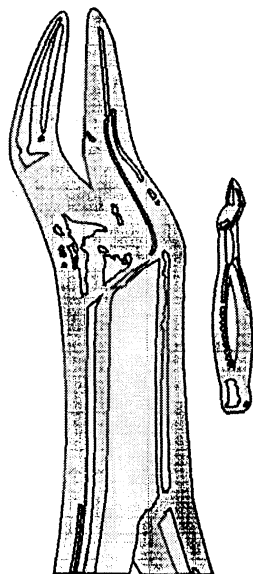
#150

DTBV2096

Figure 5-34.—Forceps #150.

together at the tips and curve opposite each other to resemble "parentheses."

**FORCEPS #286.**—Forceps #286 are similar to forceps #65. The biggest differences are that the #286 beaks are wider, and there is a wider space between the beaks nearest the handles when they are closed. These characteristics make the #286 (fig. 5-35) a little more suitable than the #65 for removing maxillary bicuspid. The #286 also is used to remove maxillary incisors and residual roots.



# 286

DTBV2097

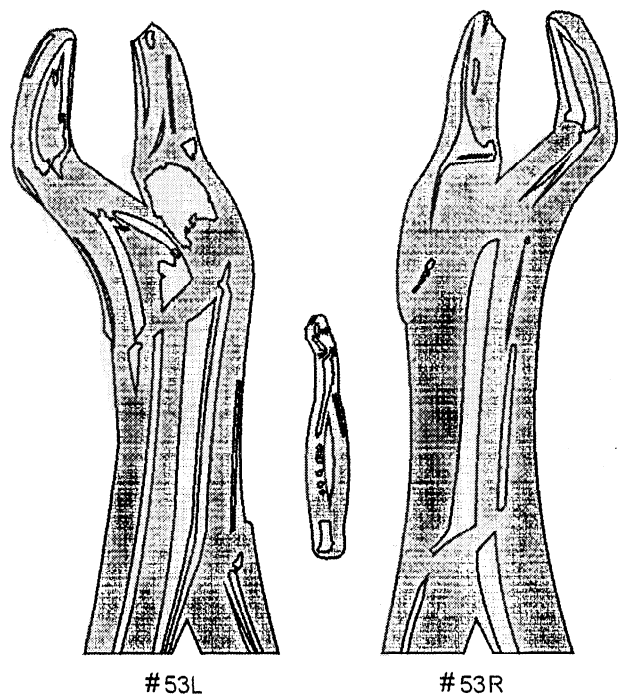
Figure 5-35.—Forceps #286.

## Maxillary Molars

Extraction forceps for maxillary first and second molars are designed as left and right forceps because these teeth are trifurcated. Some of the commonly used forceps for these teeth are the #53L, #53R, #88L, and #88R. Forceps designed for third molars include the #210H and #210S.

**FORCEPS #53L AND #53R.**—Forceps #53L and #53R are used to extract maxillary first and second molars. The letters "L" and "R" indicate that the forceps are used on the left and right sides of the maxillary arch. They have straight handles with offset bayonet-type beaks (fig. 5-36). The design lets the dentist grasp the tooth securely for rocking and elevating movements.

**FORCEPS #88L AND #88R.**—Forceps #88L and #88R are often called *cowhorns*. Like the #53L and #53R, they are used on the maxillary first and second molars. They differ slightly from the #53L and #53R in the way they remove a tooth. The primary use of the #53L and #53R forceps is to grasp the crown and root portion of a tooth so the dentist can rock the tooth from its socket. The #88L and #88R forceps (fig. 5-37) operate on a wedging principle. They are inserted between the tooth and roots and the surrounding bone. The wedging action of these straight handled forceps lifts the tooth from its socket.



#53L

#53R

DTBV2098

Figure 5-36.—Forceps #53L and #53R.

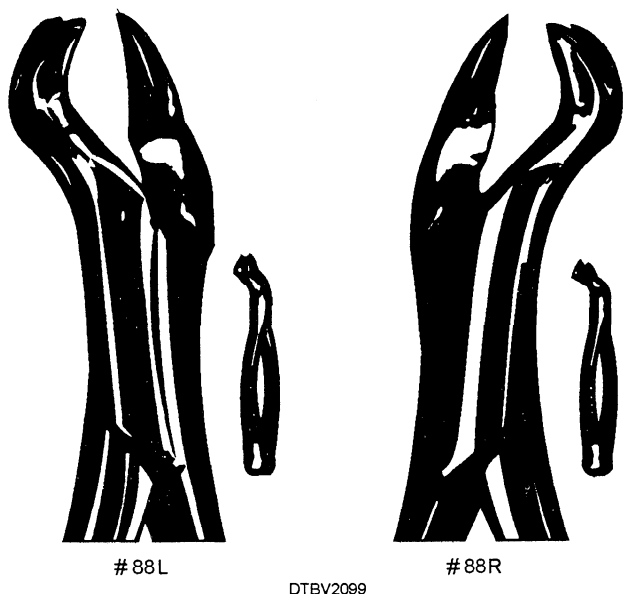


Figure 5-37.—Forceps #88L and #88R.

**FORCEPS #210H AND #210S.**—Forceps #210H and #210S are used to remove maxillary third molars (fig. 5-38). The #210H has short beaks and smooth rounded tips and a wide concave inner surface. The end of the left handle is noticeably curled to form a finger rest. The #210H is particularly effective in grasping the generally underdeveloped maxillary third molar crowns. The #210S forceps have a slightly wider beak than the #210H, and there isn't a finger rest curl. It is also used to extract maxillary third molars.

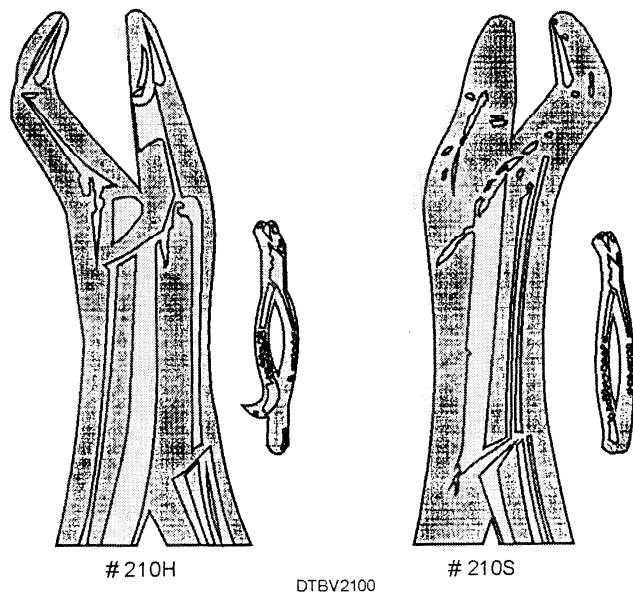


Figure 5-38.—Forceps #210H and #210S.

## Mandibular Incisors, Cuspids, and Bicuspid

Two commonly used extraction forceps for the mandibular anteriors and bicuspid are the #151 and #203.

**FORCEPS #151.**—Forceps #151 are used primarily to extract mandibular anteriors, bicuspid, and roots and are often known as the mandibular universal forceps. These forceps are similar to the #150 forceps except the beaks are set at an angle opposite to the slightly curved handles (fig. 5-39).

**FORCEPS #203.**—Forceps #203 are used on mandibular anterior, bicuspid, and roots. These forceps are like the #101 (mentioned later), except the beaks are more sharply angled from the handles. Like the #101 handles, the #203 handles are straight (fig. 5-40).

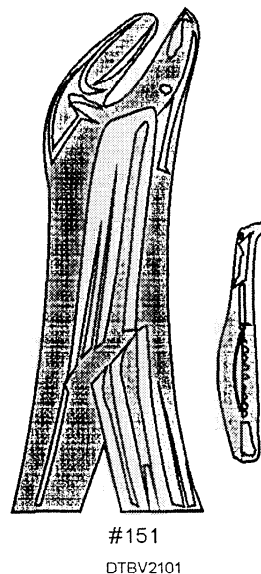


Figure 5-39.—Forceps #151.



Figure 5-40.—Forceps #203.

## Mandibular Molars

There are several popular extraction forceps for the mandibular molars, including the #15, #16, #17, #217, and #222.

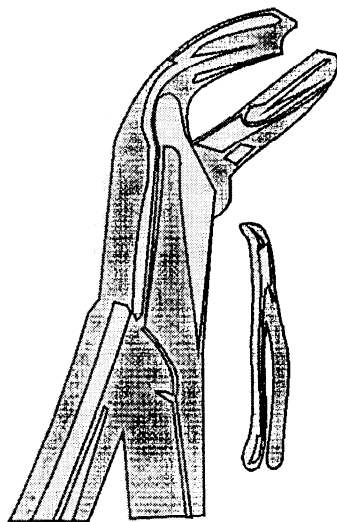
**FORCEPS #15.**—Forceps #15 are used to remove mandibular first and second molars. The beaks have concave inner surfaces with pointed projection on the tips. These forceps work well in grasping the crown with the two projecting tips extending to the bifurcation between the two roots on mandibular third molars. The left handle on the #15 has a finger rest.

**FORCEPS #16.**—Forceps #16 are used to remove mandibular molars. The #16 forceps are nicknamed mandibular *cowhorns* when they are open. The left handle on the #16 has a finger rest.

**FORCEPS #17.**—Forceps #17, like the #15 and #16 forceps, are used on lower first and second molars. The beaks of the #17 forceps are similar to the beaks of the #15 forceps; however, the handle of the #17 is straight.

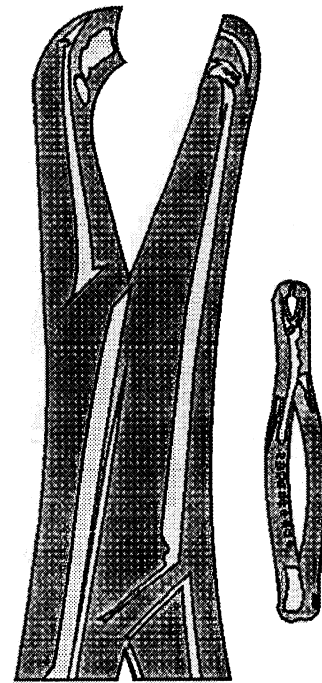
**FORCEPS #217.**—Forceps #217 are used to remove mandibular second and third molars (fig. 5-41). The beaks have inner concave surfaces and pointed projections much like those of the #15 forceps. The handles have a slight curvature and resemble those of the #151 forceps.

**FORCEPS #222.**—Forceps #222 are used on mandibular third molars. The beaks on the #222 forceps are rounded with concave inner surfaces, and angle sharply from the handle (fig. 5-42).



# 217  
DTBV2103

Figure 5-41.—Forceps #217.



# 222  
DTBV2104

Figure 5-42.—Forceps #222.

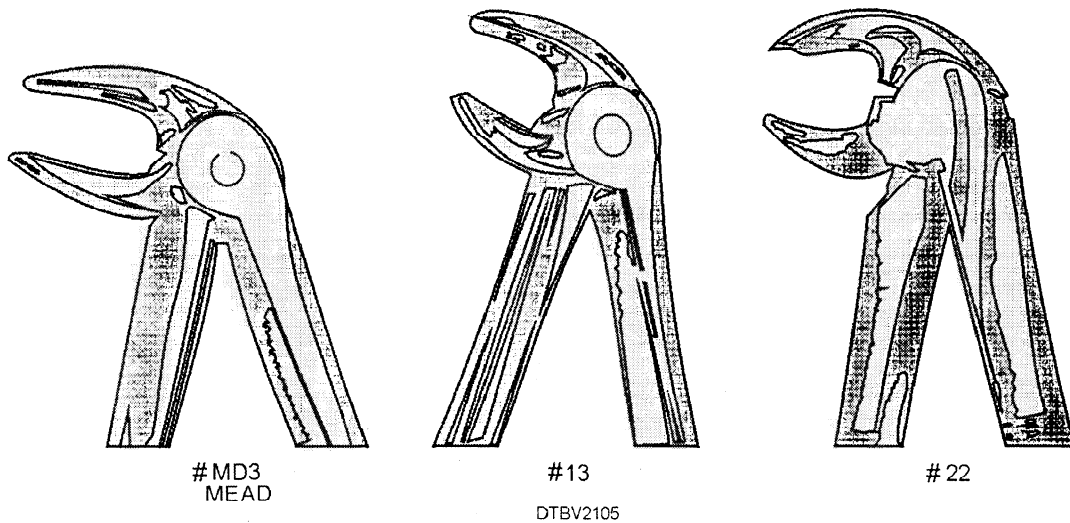
**HAWKBILL-TYPE FORCEPS.**—There are three hawkbill-type forceps: the Mead #MD3, the #13, and the #22 (fig. 5-43). The Mead #3 forceps are used on mandibular anteriors and bicuspid, the #13 forceps are used on mandibular first, second bicuspid, and the #22 forceps on mandibular first, second, and third molars. The beaks are perpendicular to the working action of the handles. This design gives the dentist a great deal of leverage with minimum effort. The major difference between these forceps is the width of the beaks, because they are used to remove different teeth.

**FORCEPS #101.**—Forceps #101 are used to remove both maxillary and mandibular cuspids, bicuspid, and any remaining roots (fig. 5-44).

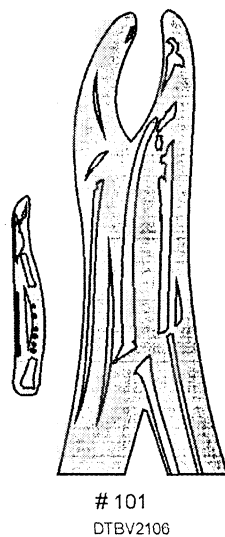
**PEDIATRIC FORCEPS #150S AND #151S.**—The pediatric forceps #150S is used to remove maxillary deciduous teeth and is a scaled down version of the #150. The #151S, a smaller version of the 151, is used to remove mandibular deciduous teeth. Both forceps are shown in figure 5-45.

## PASSING AND RECEIVING OF SURGICAL INSTRUMENTS

Instrument exchange between the dentist and assistant takes place in the transfer zone near the



**Figure 5-43.—Hawkbill-type forceps used on mandibular teeth.**



**Figure 5-44.—Forceps #101.**

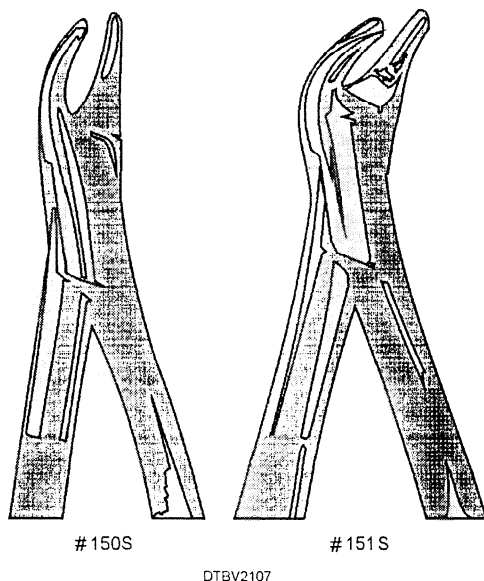
patient's chin. As an assistant, you must anticipate the dentist's needs and be ready when signaled by the dentist to pass the next instrument and receive the used one in a smooth motion.

Double-handed instruments, such as scissors, hemostats, and forceps, along with single-ended instruments with bulb-type handles, such as elevators, are transferred somewhat differently as discussed in previous chapters. As figures 5-46 and 5-47 illustrate, when passing these types of instruments, grasp the working end and place the handle into the palm of the dentist's hand. The working end of the passed instrument should be pointed toward the correct arch. When the dentist finishes with the instrument, you will receive the instrument by grasping the working end.

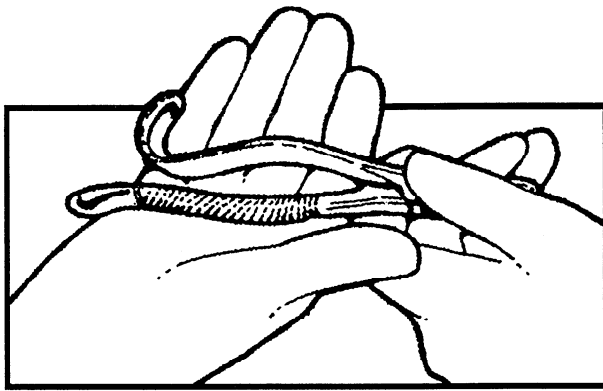
## **SURGICAL AIR DRILL**

Many different makes and models of surgical air drills are used in oral surgery. A common surgical air drill used in the Navy is shown in figure 5-48. It is a high-speed hand piece used in oral surgery procedures to remove bone and section teeth. The drill enables the dentist to accomplish these procedures quickly and reduces the trauma to oral tissues. It operates by a hand control lever while other makes and models operate by a foot pedal.

Bur guards (fig. 5-49) are used with the air drill. Surgical burs are then inserted into the drill after the bur guard is in place. Bur guards are available in three lengths: medium, long, and extra long. They are designed to protect the dentist and the patient from the long shaft of the burs. Selection of a bur guard is directly dependent on the length of the bur to be used.

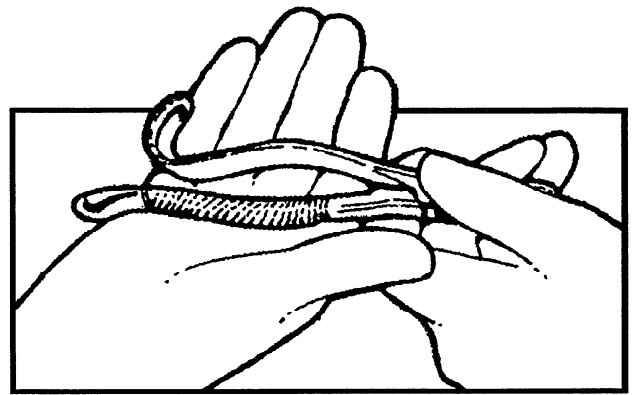


**Figure 5-45.—Pediatric Forceps #150S and 151S.**



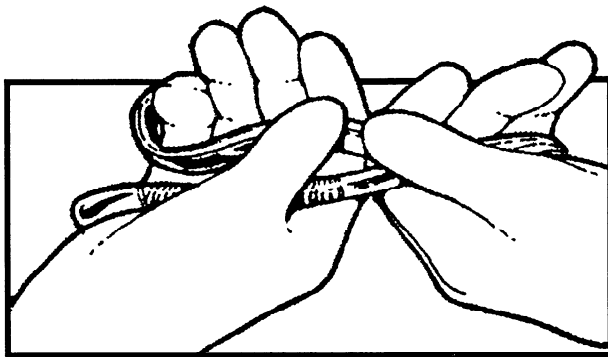
A

GRASP THE FORCEPS NEAR THE WORKING END AND PLACE IT FIRMLY IN THE DENTIST'S HAND WITH THE WORKING END POINTED TOWARD THE CORRECT ARCH.



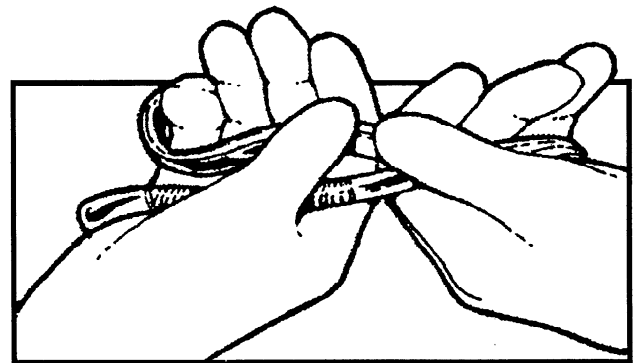
A

GRASP THE ELEVATOR BY THE WORKING END WITH THE PALM THUMB GRASP.



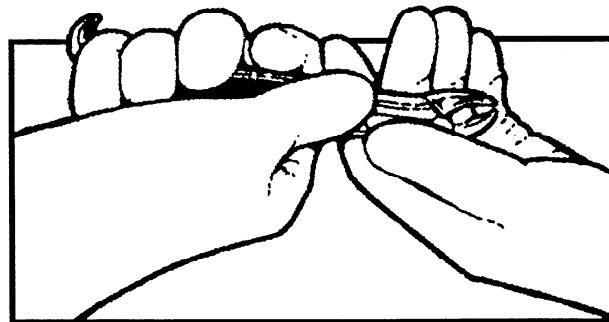
B

PLACE THE HOOK ON THE HANDLE AROUND THE DENTIST'S LITTLE FINGER TO PROVIDE ADDED LEVERAGE.



B

PLACE THE ELEVATOR IN THE PALM OF THE DENTIST'S HAND.

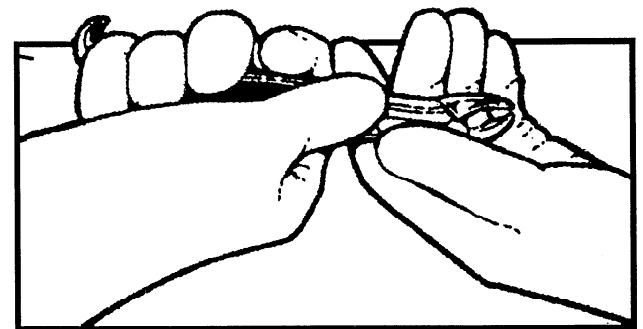


C

RELEASE THE FORCEPS AS THE DENTIST GRASPS IT SECURELY.

DTBV2108

Figure 5-46.—Transfer of surgical forceps.



C

RELEASE THE INSTRUMENT AS THE DENTIST GRASPS IT SECURELY.

DTBV20109

Figure 5-47.—Transfer of a surgical elevator.

Surgical burs (fig. 5-50) are designed specifically for surgical procedures with extra-long shanks. They are made to fit both straight and contra-angle handpieces.

The attachments required to assemble and operate the surgical air drill consist of a power source (compressed dry nitrogen tank), a pressure regulator, and a pressure/exhaust hose. Consult the

manufacturer's operating instructions for use and maintenance of the surgical air drill.

## ASSISTING IN DENTAL SURGERY

Before the surgery, you should discuss the essentials for each dental surgery procedure with the dentist. Advance preparation is essential to establish and maintain asepsis during the surgical procedure. With such preparation, you can be sure to have the necessary instruments, equipment, and materials ready for each patient.

The types of assistants that are commonly used during most outpatient dental surgery in clinics and aboard ships are the circulating and the scrub assistant.

### CIRCULATING ASSISTANT

The circulating assistant plays an important role during the dental surgery procedures and is responsible for many tasks which include, but are not limited to:

- Maintaining the chain of asepsis.
- Preparing the surgical room.
- Receiving and seating the patient.
- Taking pulse and blood pressure.
- Positioning the dental chair.

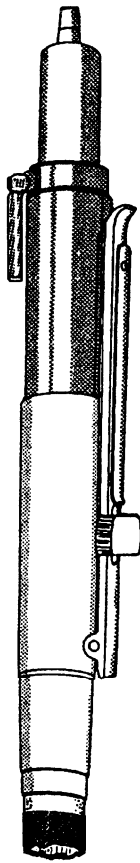
When the dentist is ready to begin surgery, the circulating assistant will bring the surgery tray and place it on the Mayo stand (adjustable tray stand). To avoid contaminating the contents of the pack, touch only the outside edges of the wrappers.

After the extraction tray is opened, the circulating assistant will stand by to assist the dentist and the scrub assistant. When the procedure has been completed and the patient has been dismissed, disinfect and clean the room for the next patient.

### SCRUB ASSISTANT

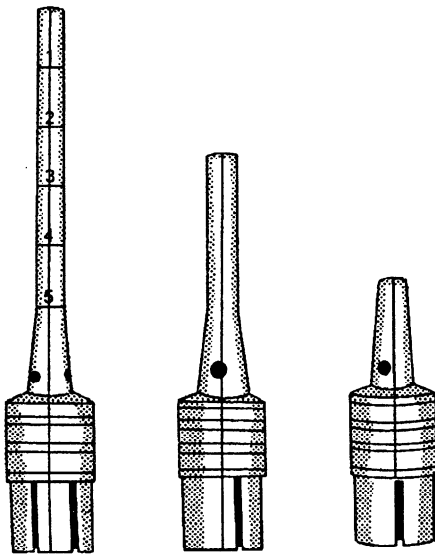
The scrub assistant will assist the dentist during the surgery procedure. Transferring of instruments, and keeping the surgical site clean and clear of debris and blood for the dentist to operate efficiently are the major duties of the scrub assistant.

Once the surgical procedure is completed, the dentist may use sutures to close the surgical wound. If the sutures have been placed, the dentist may want a pressure pack (dressing) over the extraction site to stop the flow of bleeding. Proper post-surgical instructions will also be given to the patient before dismissing.



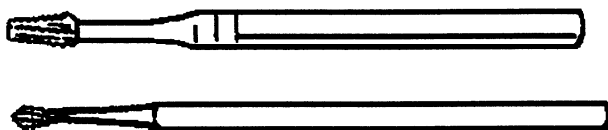
DTBV2110

Figure 5-48.—Surgical air drill.



DTBV2111

Figure 5-49.—Bur guards used with the surgical air drill.



DTBV2112

Figure 5-50.—Surgical burs.

## **PRESURGICAL PROCEDURES**

During the presurgical procedures, you will receive the patient, and prepare the surgical room. To maintain asepsis in the surgical room, you may need to take a number of special measures. The members of the surgical team may wear sterile, disposable gowns over their regular working uniforms, surgical caps, masks, and hoods (if bearded). Scrub the patient's face and drape the patient with sterile drapes. The dentist and the scrub assistant (or other team member) must perform a surgical scrub and put on sterile surgical gloves and gowns before any oral surgery procedures begin.

### **RECEIVING THE PATIENT**

As the circulating assistant, you will receive the patient once the surgical suite is prepared. Surgery patients may be nervous or fearful; take special care when receiving them.

Seat the patient and make them as comfortable as possible. Direct the patient to loosen any tight clothing, remove eyeglasses and any removable dentures. If the patient has dentures, place them in a container of water and put their eyeglasses in a safe place.

Before starting any surgical procedure, the circulating assistant will take the patient's pulse and blood pressure. The patient's vital signs will be recorded on the EZ603.

The dentist will usually stand when performing oral surgery. Position the dental chair so that the patient's head is at the level of the dentist's elbow. If the surgery is to be performed on the maxillary arch, position the chair so that the patient's alaragus line is at a 35° angle to the floor. For surgery on the mandibular arch, position the chair so that the patient's alaragus line is parallel with the floor.

### **PREPARING THE SURGICAL ROOM**

After the patient has been seated, the circulating assistant prepares the surgical room for the surgical procedure. Arrange the instrument stand (Mayo stand) with the following instruments and materials:

- Patient scrub setup.
- Surgical drape pack.
- Two packs of disposable, sterile gloves.

- A simple or complex surgical extraction pack, plus any additional instruments or materials requested by the dentist. Place the pack(s) on the Mayo stand. Position the stand to the rear of the dental chair so that the instruments are within easy reach of the dentist and the scrub assistant.
- Anesthesia pack (if one is not included in the extraction pack).

**NOTE:** Do not open any of the packs at this time.

Once the instruments and materials have been set out, the circulating assistant gets ready to perform the patient scrubbing procedures.

### **PATIENT SCRUBBING PROCEDURES**

The circulating assistant scrubs the patient's face. During the scrub procedure, take special care to see that patients with facial hair, makeup, sores, or skin infections are thoroughly cleansed. The scrubbing procedures are as follows:

**NOTE:** The circulating assistant must wear gloves when performing the following steps.

- Place a hand towel on the patient's chest to keep the patient's clothes from being stained. Tuck the top of the towel inside the patient's collar. (Use another hand towel if you need more coverage.)
- Saturate two 4 x 4 sterile gauze sponges with the surgical soap solution.
- Use both sponges to scrub the patient's cheeks, nose, and chin. Work up a good foaming lather and be sure to scrub the area beneath the chin. After 1 minute, discard the two sponges, then with two new sponges, continue the scrub. The entire process should take approximately 2 minutes.
- After the scrubbing procedure is completed, blot the excess lather with a sterile towel.

### **SURGICAL TEAM SCRUBBING, GLOVING, AND DRAPING**

While the circulating assistant finishes preparing the patient, the dentist and scrub assistant will prepare for surgery. The circulating assistant will help the other team members during the following procedures.

#### **Scrubbing**

The dentist and the scrub assistant will perform the same procedures, which requires an antimicrobial

surgical product, a nail cleaner, and a sterile hand brush or sponge. These materials are available in the scrub area. Before scrubbing, remove all rings, watches, or other jewelry from your hands and arms. Ensure that your fingernails are short, smooth, free from polish, and the cuticles are trimmed. Then, complete the following procedures:

1. Wet your hands and arms with water. Put a small amount of antimicrobial surgical product in the palm of your hand and spread the solution over your hands and arms. Work the solution into a good lather.
2. Clean your nails and cuticles with a nail cleaner under running water. When you are through, discard the nail cleaner.
3. Rinse your hands and arms under running water.
4. Wet the brush or sponge and place a small amount of the antimicrobial solution on the bristles. Scrub each hand and arm in the following manner:
  - Place your fingers together and scrub across the tips for 30 strokes.
  - Starting with your thumb, scrub each finger on all surfaces. Use 20 strokes for each finger, and make sure that the webbed areas between the fingers are scrubbed.
  - After you have scrubbed each finger, scrub your palm. Use a circular motion and scrub for 20 strokes.
  - Scrub from your wrist to 2 inches above your elbow. Brush in one direction only (away from the wrist) and scrub for 20 strokes.
  - **WITHOUT RINSING**, wash your other hand and arm in the same manner. Then discard the hand brush or sponge.
5. Rinse both hands and arms. Hold your hands higher than your elbows and allow the water to flow from your fingertips to your elbows. **NEVER** move your hands back and forth through the water. Allow the water to drip from your elbows for a few seconds before leaving the scrub area. When leaving the scrub area, hold your hands close together and away from your body. **DO NOT** touch anything.
6. While the scrub assistant and the dentist scrub, the circulating assistant will open the surgical drape pack, being careful to touch only the

outside edges of the pack. When the scrub assistant enters the operating room, use a sterile towel from the pack to dry the hands and arms, being careful not to drip on the sterile field.

7. On one half of the towel, use a blotting action to dry one hand and arm, from the fingers to above the elbow. Dry your other hand and arm in the same manner with the other half of the towel. **NOTE:** When drying, bend at the wrist and hold your hands and arms away from your body. This will keep the sterile towel from coming in contact with your unsterile scrub suit.
8. When this procedure is complete, pass the towel to the circulating assistant.

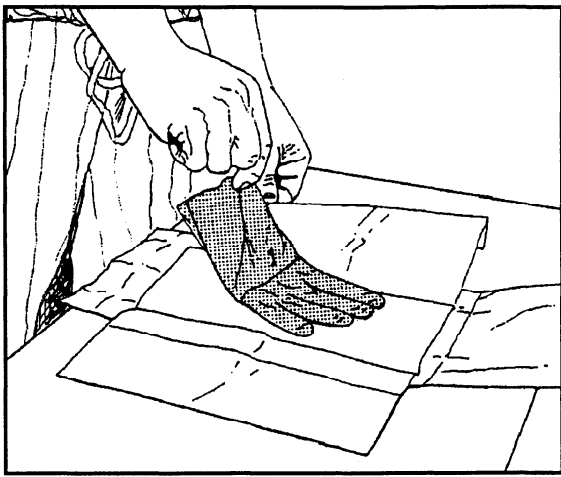
**NOTE:** The above scrubbing routine is normally performed for the first case in the morning and again after lunch. Otherwise, an abbreviated scrub procedure, consisting of a 2-minute washing procedure of your hands and arms with antimicrobial surgical product should be performed.

## Gloving

After the scrubbing procedure is completed, the surgical team will don sterile surgical gloves. Gloving procedures are the same for the dentist and the scrub assistant.

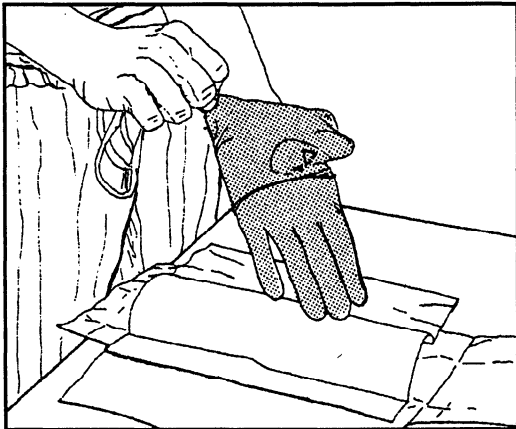
The circulating assistant will open the packages of disposable sterile gloves, touching only the outside edges of the packages. The procedures for putting on the gloves are as follows:

1. Without touching the gloves, fold back the tissue paper covering. The cuff of each glove is folded so that the inside of the cuff is partially exposed. **NOTE:** Touch only the inside portion of the glove with your bare hand.
2. Grasp the first glove at the cuff fold (fig. 5-51). Gently pull the glove onto your free hand and anchor the cuff over your thumb (fig. 5-52).
3. Slip the fingers of your gloved hand under the folded cuff of the second glove. Keeping your fingers under the folded cuff, begin to work the second glove onto your bare hand (fig. 5-53). Do this gently so that the cuff remains folded. Work the glove up, and over your hand and wrist, and onto your arm (fig. 5-54). As you do this, gradually unfold the cuff so that its inner side is now against your skin. Remember that you cannot touch this exposed inner side with your gloved hand. Finally, grasp the outside of the



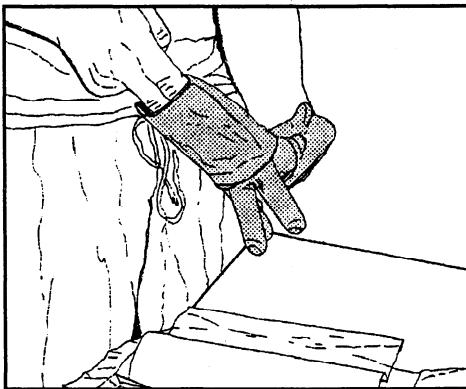
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**Figure 5-51.—Grasping the first glove at the cuff fold.**



DTBV2114

**Figure 5-52.—Anchoring the cuff over the thumb.**

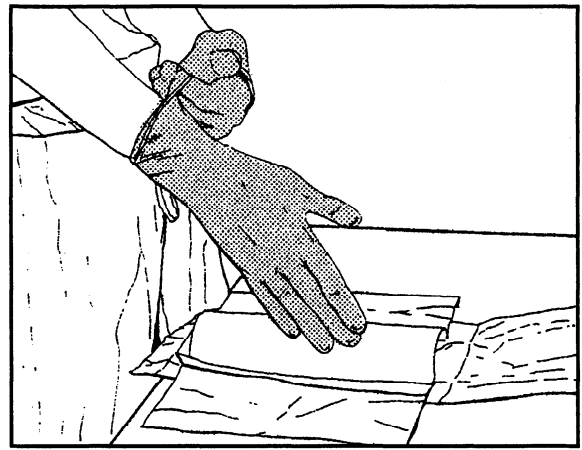


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**Figure 5-53.—Working the second glove onto your bare hand.**

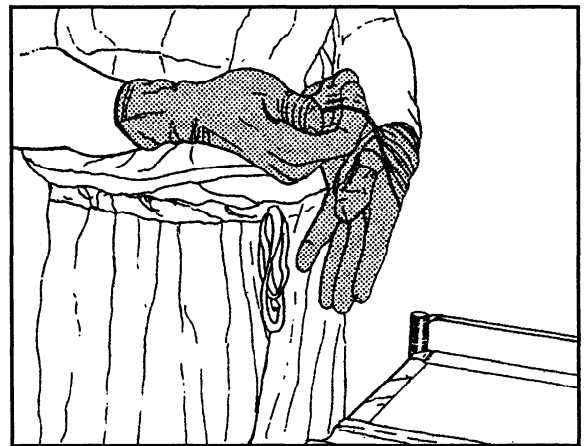
glove and pull it completely on. One hand is now fully gloved.

4. Slip the fingers of your gloved hand under the folded cuff of the first glove (fig. 5-55). Work the cuff over your wrist and onto your arm. Gradually unfold the cuff so that its inner side is



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**Figure 5-54.—Working the glove up over the hand and wrist and onto the arm.**



DTBV2117

**Figure 5-55.—Slipping gloved fingers under the cuff of the first glove.**

now against your skin. Then grasp the outside of the glove and pull it completely on.

## Draping

Both the dentist and the scrub assistant will drape in the following manner:

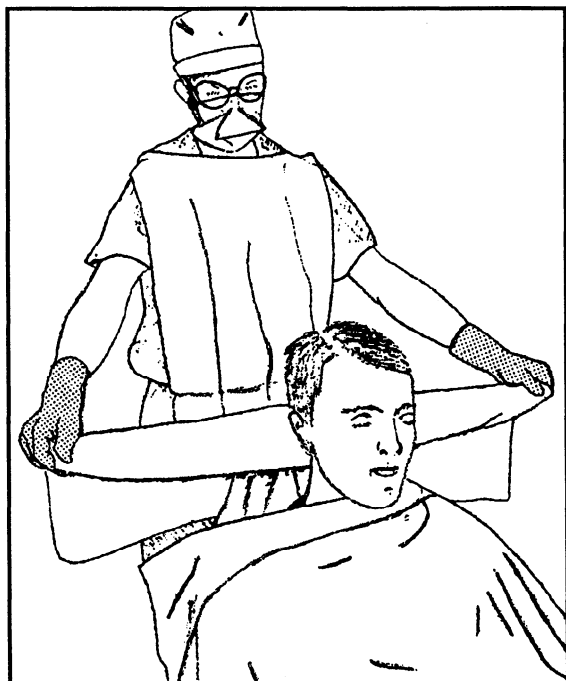
1. Remove a sterile hand towel from the drape pack. Hold it away from your body and allow it to unfold. Make sure that the towel does not come into contact with your scrub suit or any unsterile item.
2. Raise the towel to shoulder height, holding it so that a small cuff is formed at the top of the towel.
3. The circulating assistant will grasp one of the top edges at the cuff and fasten it to the shoulder of the scrub suit with a towel clip. Then the circulating assistant will fasten the other top

edge in the same manner. After the dentist and scrub assistant are draped, the circulating assistant will drape the patient.

## Draping The Patient

The drapes remaining in the drape pack are for the patient. The drape pack consists of a body drape, head drape, and four sterile towel clamps. Additional drapes may be used, depending on the preference of the dentist. The scrub assistant will drape the patient in the following manner:

1. Grasp the corners of the body drape. Lift it up and away from the pack, allowing it to unfold. Hold the drape so that a small cuff is formed across the top. Be sure that the drape does not come into contact with unsterile items. Do not shake the drape.
2. Carry the drape to the patient and place the top edge directly under the patient's chin and over the shoulders. The remainder of the drape should cover the patient's chest and upper thighs.
3. Grasp the corners of the head drape and remove from the pack in the same manner as the body drape. The cuffed portion of the inner drape should be up and folded away from you.
4. Place the top of the drape over the headrest of the dental chair (fig. 5-56).



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Figure 5-56.—Top of the head drape placed over the headrest.

5. Grasp the inner drape by the corners and draw the left side of the drape over the patient's left eye and the bridge of the nose. Then draw the right side of the drape over the patient's right eye and the bridge of the nose. Using a sterile towel clamp, fasten the two sides of the head drape together.
6. Using a sterile towel clamp, fasten the left side of the head drape to the left side of the body drape; then do the same thing on the right side. The patient is now completely draped and ready for the surgical procedure.

## SURGICAL PROCEDURES

Surgical procedures cover the duties of the circulating assistant and the scrub assistant during the procedure. Because of the importance of maintaining asepsis in the operating room, this section will begin with a discussion of certain rules of the aseptic technique.

## RULES OF THE ASEPTIC TECHNIQUE

These rules are designed to help you avoid contaminating instruments and materials during oral surgery. By following them closely, you will greatly reduce the possibility of introducing cross-contamination into the oral cavity during the surgical procedure.

1. An article is either sterile or unsterile. If there is any doubt, consider the article unsterile and discard it immediately.
2. Do not open a sterile pack or container until the article(s) is/are required.
3. If you are the circulating assistant, touch only the outside edges of the wrapper when opening a sterile pack. Take care when unfolding the wrapper so that the inside does not brush against your clothing. If you are the scrub assistant, never touch the outside of a pack.
4. Wear sterile gloves and change gloves if they become punched or torn. Make sure you discard the contaminated gloves.
5. Remove sterile articles from a pack or a container by lifting them straight up and out. Never drag an article over the edge of a pack or a container.
6. Once an article is removed from a sterile pack or a container, do not place it back in the pack.

7. Place sterile articles on a dry, sterile surface. Moisture will contaminate the articles.
8. Only the top portion of a draped instrument stand should be considered sterile. Sterile gloves must be used in this area. Any portion of the wrap hanging over the edge of the stand is considered unsterile.
9. If an instrument becomes contaminated, discard it immediately.
10. If a delay occurs in the procedure, the scrub assistant should cover all unwrapped packs with sterile drapes.
11. All sterile articles set out for a procedure must be cleaned and sterilized or disposed of after the procedure is completed. This pertains to articles that were not used.
12. Never reach behind another draped member of the surgical team.
13. Always keep your hands above your waist.
14. Always face the draped patient and the other members of the surgical team. If it becomes necessary to pass another draped member of the team, pass back to back.
15. Always pass an unsterile object in the operating room with your back toward the object. Unsterile objects include chairs, desks, cabinets, and similar items.

## **INSTRUMENT SETUP AND MATERIALS**

It is critical that you establish and maintain a sterile field when preparing for a surgical procedure. A scrub assistant must have on sterile gloves when a sterile surgical tray is opened for a surgical procedure. The corners of the wraps are carefully unfolded and allowed to drape over the surface where the tray is positioned to provide a sterile field. The instruments and materials should be arranged in the sequence in which they are most commonly used during the procedure. This expedites the exchange of instruments between the scrub assistant and the dentist, and avoids searching the tray for an out-of-place instrument. Once instruments are used, they should be returned to their proper location whenever possible. Both the scrub and circulating assistants should know all the surgery instruments to be used by name, number, purpose, and sequence of use.

As part of the preparation, the scrub assistant must assemble several items on the tray setup, such as

anesthetic syringes, scalpel and blade, irrigation syringe and tip (or bulb syringe if used), surgical suction tip, and handle with tubing. First, the circulating assistant fills the metal cup with sterile saline. After that the scrub assistant fills the irrigation syringe from the cup.

Figure 5-57 illustrates a tray setup for a complex or impacted surgical extraction. Please note that all the instruments shown in figure 5-57 may not be in the same setup that you may use at your command. The surgical tray setup should be kept covered with a sterile towel until the procedure begins.

## **POST-OPERATIVE PROCEDURES**

Some of the more common post-operative procedures that the dentist may direct you to perform include control of bleeding, post-surgical instructions, and suture removal.

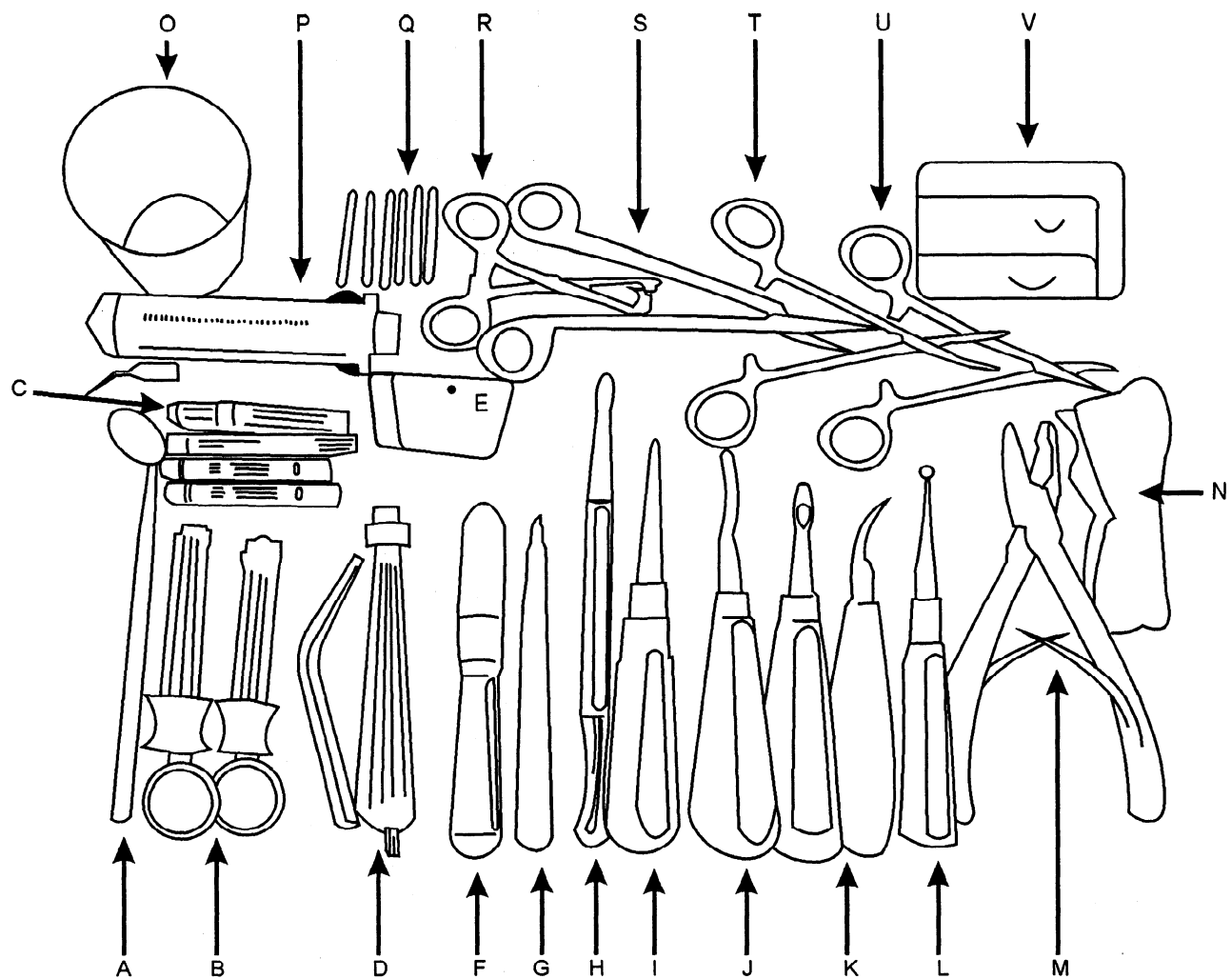
### **CONTROL OF BLEEDING**

After an extraction, place a moistened pressure pack made of folded, sterile gauze squares over the socket (fig. 5-58). It is important that this pack stays in place to control bleeding and encourage blood clot formation. Instruct the patient to keep the pack in place for at least 30 minutes to an hour. Warn the patient that removing the compress too soon will disturb blood clot formation, and may increase the tendency of hemorrhage and delay healing. Give the patient extra gauze to place an additional pressure pack if hemorrhage has not stopped after the original pack is removed. Advise the patient to limit activity and avoid strenuous work or exercise for a few days after surgery to avoid hemorrhage at the surgical site.

### **POST-SURGICAL INSTRUCTIONS**

Post-surgical instructions to patients are important guidelines that they should follow to prevent complications and unnecessary discomfort. In many instances, the dental assistant may be responsible for giving the post-surgical instructions to the patient. It is advisable to discuss these instructions with the patient after the surgery to prevent confusion. If a patient is sedated, verbal instructions must be given to the patient before the sedation and to the patient's escort.

In either case, the patient should be given a printed copy of the instructions to review after leaving the dental clinic. Patients tend to forget verbal instructions, especially when they are given right after



A. MOUTH MIRROR  
 B. ANESTHETIC SYRINGES  
 C. ANESTHETIC NEEDLES & CARPULES  
 D. SURGICAL SUCTION TIP & HANDLES  
 E. MOUTH PROP  
 F. MINNESOTA RETRACTOR  
 G. SCALPEL WITH #15 BLADE  
 H. PERIOSTEAL ELEVATOR

I. TOOTH ELEVATOR, #301  
 J. TOOTH ELEVATOR, #92  
 K. COGSWELL A & B  
 L. MOLT BONE CURETTE  
 M. RONGUER FORCEPS  
 N. ROLLED 4X4 GAUZE  
 O. METAL CUP

P. IRRIGATION SYRINGE & TIP  
 Q. SURGICAL BURS  
 R. TOWEL CLAMPS  
 S. SURGICAL SCISSORS  
 T. CURVED HEMOSTAT  
 U. NEEDLE HOLDER  
 V. SUTURE MATERIAL

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Figure 5-57.—Tray setup for a complex or impacted surgical extraction.

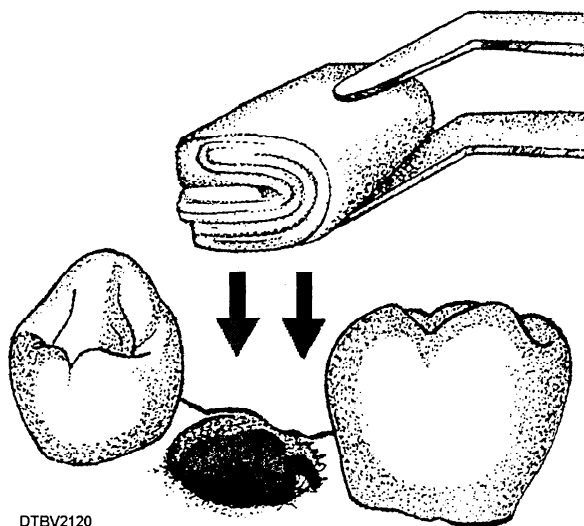
surgery. Verbal instructions are given only to emphasize the important written guidelines.

Stress to the patient that home care following dental surgery is important and recovery could be delayed if this is neglected. Inform the patient that some swelling, stiffness, and discomfort are to be expected. If these reactions are greater than expected, inform the patient to call or return to the dental clinic for care.

The expected effect of anesthesia, both local and conscious sedation agents, if applicable, should be explained to the patient and escort. Inform the patient

to keep the gauze pack in place over the surgical site with **light** pressure until the hemorrhage stops or the gauze becomes saturated. Following surgery, many patients are so relieved the surgery is completed that they will try to talk and ask numerous questions. This should be firmly discouraged by explaining to the patient that healing depends on establishing good clots and steady light pressure. The gauze pack need not be replaced if bleeding has ceased. A slight ooze can be expected at times and could continue for a few hours.

Advise patient to limit activities and avoid strenuous work or exercise for a few days after surgery. Caution the patient to keep the head elevated with



**Figure 5-58.—Placing a pressure pack.**

pillows when resting or sleeping during the first 24 hours since lowering the head increases blood pressure and can promote continued bleeding.

Instruct the patient not to smoke or use a straw for at least 24 hours. Frequent spitting, sucking on the wound, and using mouthwashes should be avoided during this time to secure an adequate blood clot.

Inform the patient to take the prescribed medications for pain, and the antibiotics to prevent infection (if prescribed). It is best if the patient takes the first dose of pain medication after the removal of the initial gauze pack. This allows the pain medication to enter the blood stream before the effects of the local anesthesia wears off.

Instruct oral surgery patients to place an ice bag or chemical cold pack- on the external area of the treatment site for the first 24 hours only, to minimize swelling. Apply the ice for at least 30 minutes on and then 30 minutes off after the surgery. Any amount of time less than this will not permit the cold to penetrate the tissues adequately. Cold is effective in decreasing edema by constricting the blood vessels. Heat may be placed on the jaw after the first 24 hours to minimize swelling.

You should recommend a soft diet and sipping of water and fruit juices for a few days following dental surgery. Make sure the patient has an appointment to return for a post-surgical check in 3 to 5 days.

You should always remain with your surgical patients until they recover enough to be dismissed. Dismiss your patients as cordially as you received them. Closely observe the patients as they leave to make sure that they are steady and show no signs of distress. If patients exhibit any signs of dizziness, detain them until the dentist can evaluate their condition.

## **SUTURE REMOVAL**

Sutures can be removed 3 to 7 days following surgery, depending on the material and procedure. For example, nylon or silk sutures are removed from 3 to 5 days after surgery if adequate healing has taken place. After the extraction site is examined by the dentist, suture removal can be delegated to the assistant.

Irrigate or swab the suture site with an antiseptic solution to remove any debris. Locate and account for all the sutures placed during the surgical treatment. Use a hemostat or cotton forceps to gently lift the suture away from the tissue to expose the attachment of the knot. With the scissors in the other hand, slip one blade of the scissors under the suture and one blade over the suture. Cut the suture material as close to the tissue as possible so that a minimum of material is pulled through the tissue. Grasp the knot and gently slide the suture out of the tissue. Take care not to pull the knot through the tissue, since this causes unnecessary discomfort to the patient. Continue lifting and snipping the suture material until all sutures are removed. Count and compare the number of sutures removed with the number placed as indicated in the patient's record. Irrigate the surgical area with antiseptic solution if there is any bleeding.

## **COMMON POST-SURGICAL COMPLICATIONS**

Just as with any surgical procedure, there can be complications. In oral surgery, the common post-surgical complications are alveolar osteitis, swelling, and bleeding. These complications have been discussed in *Dental Technician*, Volume 1, chapter 6, "Emergency Treatment of Oral Diseases and Injuries," and under the Post-Surgical Instructions section in this chapter.

